

REMARKS/ARGUMENTS

Claims 1-59 are pending in the application. In this reply, Claims 1, 3, 4, 12, 15-21, 43, 47, 51, and 52 have been amended. Claims 3, 4, 12, 15-21, 51, and 52 have been amended only to bring the language of those claims in accord with the new language of Claims 1, 43, and 47. Gratuitous discussion of Claims 3, 4, 12, 15-21, 51, and 52 is therefore avoided in order to respect the time of the Examiner.

CLAIM REJECTIONS—35 U.S.C. § 101

Claims 1-59 were rejected under 35 U.S.C. § 101 as allegedly failing to provide a “useful, concrete, and tangible result.” This rejection is respectfully traversed for the reasons discussed below.

Claim 1 recites the feature, “**propagating the message** along with information describing the identical event.” This feature represents a useful, tangible result.

Message propagation in any networked computer environment is useful, since the very essence of a network is communication between systems. In a clustered computing environment, the benefit of communication between systems is increased because resources such as storage may be shared. Messages from one computer in the cluster to other computers in the cluster may be used to share information about shared hardware failure. Since an event that affects one computer in a cluster may also affect others in the cluster, the sharing of information between computers is useful.

The result of the communication between computers in a clustered computing environment would be considered tangible and concrete to one skilled in the art. “Event” driven

messaging helps to increase system availability by notifying those with access to the system about failures.

Since Claims 1-59 all represent efforts to improve the “communication of data in a clustered computing environment,” it is respectfully submitted that Claims 1-59 are patentable under 35 U.S.C. § 101.

CLAIM REJECTIONS—35 U.S.C. § 102

Claims 1-11, 14, 19-20, 22-32, 35, 40-41, 43-51, 53-57, and 59 were rejected under 35 U.S.C. § 102(e) as being anticipated by Kampe (US 6,618,805). The rejections of Claims 1, 43, and 47 are respectfully traversed for the reasons discussed below. All other claims are dependent claims that will benefit from the amended versions of the claims depended on. Therefore, gratuitous discussion of dependent claims will be avoided to respect the time of the Examiner.

Claim 1

Since Claim 1 has been substantially amended, the new version of Claim 1 is listed here in its entirety to assist in the examination process.

1. A computer implemented method for communicating data in a clustered computing system, the method comprising:
detecting an occurrence of an initial event at a first node of the system;
detecting an occurrence of one or more subsequent events at the first node of the system;
determining that the information about the initial event is identical to the information about said one or more subsequent events;
in response to determining that the information about the initial event is identical to the information about said one or more subsequent

events, appending, onto an existing message, a notification that includes information that describes a single instance of an event selected from a set of events that consists of (a) said initial event; and (b) said one or more subsequent events; propagating the notification to the receiving node, wherein the message is destined to be propagated to a receiving node that is not a node sending the message.

On page 5, in rejecting Claim 1, the Office Action states that Kampe teaches “appending a notification including the information describing the identical event onto **an existing message.**” The Office Action text quoting Kampe actually teaches away from this method (*The MCEC 1010 filters out stale, redundant, and misleading error messages being sent to the availability manager 405. For example, if ten different components all report the same event to the MCEC 1010, only one error message needs to be passed along to the availability manager 405.*) [see the discussion beginning at col.14, line 5]. Kampe makes no mention of appending event notifications onto an **existing message**. This makes sense because an existing message would only be created when a message needs to be sent from one node to another node on the system. The invention in Kampe shows that the **MCEC 1010 and the Availability Manager 405**, the path between them being the comparable path of data flow, **are on the same node** (node 106) [see Figure 10 showing the MCEC and Availability manager on node 106, and Figure 11, showing a detailed overview of the Kampe system also showing the MCEC and the Availability Manager on the same node]. In contrast, the embodiment recited in Claim 1 solves the very different problem of reducing the effect of **network** traffic resulting from normal everyday event notifications in a clustered computing environment.

Sending “all errors from all components” is taught by Kampe in the context of a **centralized** decision-making system, and does not consider efficiency in the transmission of these messages to **other nodes in a distributed system** (*In one embodiment, all errors from all components ...are sent to the MCEC 1010. This provides a centralized decision making location.*) [See the discussion at Col 13, Line 48]. By contrast, Claim 1 requires that notifications of events be appended **onto an existing message** rather than merely being broadcast. Furthermore, Claim 1 **requires an existing message** in order to avoid creating new messages for events. No mention of appending data to existing messages can be found in Kampe. Therefore, it is impossible for Kampe to “teach” such a thing. Appending information to existing messages has the advantage of saving bandwidth while ensuring the dissemination of event information, thereby increasing efficiency of the network without losing context.

By way of analogy, one might consider a train traveling from Maryland to California. If a freight car along the way has been loaded with cargo destined for California, then it is much more efficient to add the freight car onto a train that is already traveling to California. The alternative (giving the freight car a train of its own) seems ridiculous.

Regarding the context of the embodiment recited in Claim 1, it must be considered that the creation of messages by a computer system is an expensive process, slowing down the clustered system and adding more traffic to the network that is used for communication between clustered systems. Although the size of an event notification may be small, event notifications can use a significant amount of bandwidth on a network if there are many of them. By “grabbing” a message that is already destined to be propagated to the receiving node and “stuffing” some extra data (in the form of an event notification) into the message, a very tangible efficiency can be realized. **Overhead associated with message delivery has been saved.** Thus,

the distinction between the embodiment recited in Claim 1 and the cited art is not the fact that messages can be coalesced, but rather the very detailed method described in which efficient communication can be achieved through a system of coalescing messages and appending appropriate data onto an existing message, thereby achieving the result of event notification in such a way that uses less processing power and network resources.

Although Claim 1 presents a method from which Kampe clearly teaches away, Claim 1 has been amended. This is an effort to focus the language of Claim 1 so that the advantages of the particular embodiment of the invention recited in Claim 1 are more prominently emphasized. Specifically, the requirement that “the message is destined to be propagated to a receiving node that is not a node sending the message” more deliberately articulates the use of the invention for efficiency in a clustered system. Those skilled in the art will recognize the efficiency resulting from the use of existing messages to save on the overhead associated with message creation and dissemination. Since Kampe has clearly not contemplated the use of existing messages to transport event notifications, Claim 1 should be allowed.

For at least the above reasons, Claim 1, and the claims that depend from Claim 1, are patentable over Kampe under 35 U.S.C. § 102.

Claim 43

Since Claim 43 has been substantially amended, the new version of Claim 43 is listed here in its entirety to assist in the examination process.

43. A computer implemented method for communicating data in a clustered computing system, the method comprising:
detecting an occurrence of an event at a first node of the system,

determining if the information about said event is identical to another
previously occurring event;
appending onto an existing message a notification that describes a single
instance of said event, wherein the message was destined to be
propagated to a receiving node that is not a node sending the
message; and
propagating the notification to the receiving node

On page 12, the Office Action says the “rejection of claims1 above is incorporated here in full.” Certainly, the arguments above in support of Claim 1 draw a stark distinction between the approach shown in Kampe and the method of Claim 1 of the present application. Specifically, the use of an existing message for transport is a feature not found, contemplated, nor taught in anywhere in Kampe. Furthermore, the portions of the references cited in the Office Action (col.3, line 60-65, col.7, lines 27-33, Figs.1 and 10, and col.11 line 47) fail to show the use of an existing message as a means of transporting event notifications. In fact, Kampe makes no reference to an existing message at all.

Although Claim 43 recites a method from which Kampe clearly teaches away, Claim 43 has been amended. This is an effort to focus the language of Claim 43 so that the advantages of the particular embodiment of the invention recited in Claim 45 are more prominently emphasized. Specifically, the requirement that “the message is destined to be propagated to a receiving node that is not a node sending the message” more deliberately articulates the use of an embodiment of the invention for efficiency in a clustered system and the requirement of travel over a data network.

For at least the above reasons, Claim 43, and the claims that depend from Claim 43, are patentable over Kampe under 35 U.S.C. § 102.

Claim 47

Since Claim 47 has been substantially amended, the new version of Claim 47 is listed here in its entirety to assist in the examination process.

47. A computer implemented method comprising the computer-implemented steps of:
- receiving, at a database server that is executing on a second node in a distributed system, a message that (a) was transmitted by a first node in the distributed system and (b) subsequently had appended thereon information describing an event; and
 - retrieving the information describing the event from the local node where said event occurred.

On page 13, the Office Action says the “rejection of claims1 above is incorporated here in full.” Again, the arguments above in support of Claim 1 draw a stark distinction between the approach shown in Kampe and the method of Claim 1 of the present application.

Claim 47 has been amended, however, to narrow the focus of the claim to include only receiving a message that was generated by the methods described in Claims 1 and 43. This overcomes prior art by requiring that a message had been transmitted and “subsequently had appended thereon information describing an event.” This amended version avoids claiming the receipt of messages that simply carry coalesced events.

The arguments for Claims 1 and 43 above show that Kampe does not disclose a system of coalescing messages and appending appropriate data onto an existing message Therefore, Kampe also does not disclose receiving such messages.

For at least the above reasons, Claim 47, and the claims that depend from Claim 43, are patentable over Kampe under 35 U.S.C. § 102.

CONCLUSION

For the reasons set forth above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

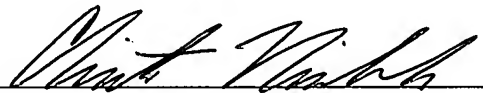
The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Please charge any shortages or credit any overages to Deposit Account No. 50-1302.

Respectfully submitted,

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